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ABSTRACT

This study of 148 Bulgarian children with mild intellectual disabilities investigated the incidence of various types of speech and language disorders in children with intellectual disabilities. A questionnaire was given to the parents and relatives of the children requiring information about the pupils' pre-, peri-, and early postnatal onthogenesis. The children also underwent a battery of diagnostic measures designed to measure fluency, rate, articulation, voice, respiration, language, and motor skills and academic skills. Results found various types of speech, language, and fluency disorders in 121 of the children, including: writing, reading and arithmetic problems; cluttering; stuttering; voice disorders; and articulation disorders. The report describes the incidence of each of the speech and language impairments found, and the factors involved. A diagram of the dissemination of the speech and language disorders in the children is also provided. (Contains 18 references.) (CR)

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SPEECH AND LANGUAGE DISORDERS IN CHILDREN WITH INTELLECTUAL DISABILITY

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INTRODUCTION

The issue of dissemination and clinical characteristics of speech and language disorders (SLD) in children with intellectual disability (CID) has been underestimated for years in the general strategy of therapeutic work. Regardless of a great quantity of scientific studies in Bulgaria (Zl. Dobrev, K. Karadjova, 1992) in Russia (V. Petrova [1977], Kashe [1957],etc.), and in western countries (S. B. Maisonny[1972], C. Launay [1972]), there has been little attempt to identify speech characteristics of pupils with ID (S.J. Rubinstein, 1979). SLD negatively influences the cognitive processes of a developing individual as well as his/her entire adjustment to the school environment. The significance of the issue mentioned above is indisputable in theoryl and practice .

METHOD

The main goal of the present research is to investigate the dissemination of various types SLD in CID as well as to provide a brief description and analysis of the most important clinical manifestations of SLD.

SUBJECTS

148 clients (78 males and 70 females) with mild ID were evaluated at the special school for the intellectually disabled between September and December 1994 in Blagoevgrad, Bulgaria.

EVALUATION PROCEDURES

A questionnaire was given to the parents and relatives of CID attending the special school. It consisted of several points requiring information about the pupils' pre-, peri- and early postnatal onthogenesis. The subjects underwent a battery of diagnostic measures developed by a team of specialists working in the Department of Special Education at Southwestern University. The diagnostic battery was composed of a case history questionnaire (diseases in the family, psychiatric disorders in family members) and a study of routine speech and language status:

- fluency (disfluency types);
- rate (speed [slow, average, rapid], regularity [regular, irregular]);
- articulation (spontaneous speech);
- voice (modulation, pitch, loudness);
- respiration (normal- disturbed);
- language (picture, description and story telling, lexical and syntactical level);

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- motor skills and academical skills (handwriting, writing, reading and arithmetic skills).

RESULTS

Various types of speech, language and fluency disorders were found in 121 CID,(i. e., 82% of the subjects): writing, reading and arithmetic problems, cluttering, stuttering, voice disorders, articulation disorders (see Diagram No1). Obviously, the problems differ according to the types of their presentation and mechanisms and therefore need a different type of analysis. The disorders presented have systematic character, and the impairment of semantic component prevails in the structure of the speech disorders.

DISCUSSION

1. About fluency disorders

The high prevalence of fluency disorders in clients is not surprising since our evidence correlates with the data presented by Cabanas (1954), Weiss (1964), Preus (1973), and K. St. Louis (1992). Stuttering has been registered in 14. 04% of cases while cluttering prevails in 12. 3%. Cabanas and Weiss considered the fluency disorder in CID to be cluttering more than stuttering in the 1950s and 1960s. This belief is due to old definitions of that disorder as well as to the important role of symptoms like awareness of the impairment and reaction against it. Our study confirms findings in the clinical studies of Preus (1973) and Forchammer (1955) with regard to the similarity in presentation of both disorders in CID. However, we have not registered cases of mixed form of fluency disorder (stuttering, cluttering). In addition, the results of inquiry into and investigation of speech and language status confirm the concept of E. Cooper(1986) that the type of disfluency manifests in CID and normal children identically.

Authors like Sheehan, Martin & Kilburn (1968), Martin, Sheehan & Sluk (1969), Chapman & Cooper (1973), Brady & Hall (1976), and Brindle & Dunster (1984) (under O. Bloodstein, 1995) concern the issue about the range of stuttering among CID. They pointed out that phobias (fears), avoidance and secondary stuttering symptoms can and do occur in persons with ID.

We hypothesize psychotrauma and fluctuations in the development of fluency problem to be diagnostic indicators for stuttering. Frequently, psychotrauma can be regarded to be one of the factors accompanying the acute onset of stuttering. In Bulgarian and Russian scientific literature, it is believed that psychotrauma is the most often encountered exogenous cause producing stuttering (Kurshev, 1973; Vlassova & Becker, 1983). Also, in the case of stuttering, there are periods of considerable improvement (e.g., after speech therapy or among supportive families) or the contrary, such as after an illness. Eleven cases of documented psychotrauma appeared in the present study, all related to stuttering. It is important to emphasize that 3 of 32 cases of FD were children with Down syndrome, all classified as clutterers because the leading features in the structure of their disorder are increased rate of speech, disarticulations and perceverations of syllables, words and phrases. Cluttering is accompanied by voice disorders like monotony and a hoarse voice.

2. About articulation disorders

Bulgarian terminology in the field of speech and language therapy includes three kinds of articulation disorders: misarticulation, rynolalia and disartria.

A brief review of the literature reveals that disturbance in sound-pronunciation can be found in people with ID more frequently than in normal people. The high percentage of its dissemination (35.5%) among CID in our investigation supports the latter. Misarticulations of **r, s, l, z, ch, tch,** are the most common disturbances. The data obtained correlate with the evidence presented by authors like G. A. Kashe, M. Zeeman, S. B. Maisonny, and Cl. Laney. The following causes might be determined as the main ethiological factors for disturbed articulation:

- cognitive insufficiency;
- insufficiency in auditory perception (discrimination): we applied the standard auditory discrimination test asking the listener whether two contrasting syllables or words are the „same" or „distinct". It has been demonstrated that CID presenting poor discrimination tend to have poor articulation;
- insufficiency in general and speech motor skills;
- impairments in structure of articulation apparatus.

Parallel with the incorrect pronunciation mentioned above, a great number of polymorphic sound replacements appeared. Difficulties in the development of correct and exact articulation are very characteristic of CID. Complex disturbances of **r, s, l** articulation are the most common. In addition, we found a variable character of disarticulation in CID, i.e., the disorder manifests differently every time -in some cases a certain sound can be pronounced in a right way, while sometimes it might be omitted or altered. We explain this evidence according to a given word's sound- syllabic structure as well as a sound's place in the word. A child can articulate a certain sound correctly when the latter is placed at the beginning of the word or in a simple word, but mistakes are common when there is a concentration of consonants in the word. However, these disturbances present constant character with specific features in CID in the primary school cycle.

Hyperrynolalia aperta was registered in 2.4% of clients. Leading characteristics are articulation, voice and breath disturbances, which determine a hard comprehensiveness of speech. This pathology is characterized by nasal resonance of all voiced sounds and by the absence of complete palatopharingeal closure in a child. In a case of Down syndrome, we observed Cleft Palate. This individual also has craniofacial structures and presents the following speech symptoms: abnormal phonation and resonation, interference with speech sound development, speech associated audible and visible compensatory reactions and problems in auditory activity and imagery.

Pupils with ID and cerebral palsy (5 cases) comprise a very interesting group as regards articulation. As N. M. Trubnikova (1988) pointed out studies of articulation in children with a complex disability such as oligophrenia and as well as cerebral palsy have never been carried out in Russia. The author views the polymorphic type of articulation in high correlation with senzo-motor disorders such as, a less developed articulation basis caused by impairment in muscles participating in the articulation system. We can classify as disartria (9 cases) the constant and specific disarticulations and disprosodia found in 11.5% of cases, when accompanied by disturbances in motor skills, i.e., unclearness of speech, bradilalia, changes in the sound and syllabic structure of words, and voice disorders like a silent monotonous voice with nasality. It is well known that initial

and final prolongness of consonants is due to difficulties in the fluent transition from one articulation position to another, combined with delayed, strenuous and sometimes perceverative movements. Replacements and mixtures of sounds prevail while misses of sounds decrease as M. Hvatsev (1959) points out.

3. About language disorders

There are a number of quantitative analyses of speech of CID (G. A. Kashe [1957], M. Seeman [1962], Naremore & Dever [1975], V. Petrova [1977], R. Lalaeva [1983], Zl. Dobrev & K. Karadjova [1992]). Different studies emphasize the distinctions existing in the speech of normal children and CID, but „ qualitative analyses have pointed to similarities between the two populations" (M. Laney [1991]). There are registered disturbances in CID with respect to their independent language systems: semantics, syntax, phonology and communicativeness (speaker-listener interaction and speech act aspects); phonetic abnormality (individual phonemes, especially consonants, which are either pronunciated slowly or omitted). We noticed shorter, simpler sentences. With regard to semantic abnormality, slowness in the development of vocabulary is noticed. Language disorders (64.4%) found in our research suggest emphasizing the poor lexic and incorrect usage of words. The hard actualization of vocabulary, the prevalence of impressive over expressive speech and difficulties in the comprehension of words correlate with evidence in scientific sources. We found:

- lack of knowledge of subject names;
- prevalence of nouns with concrete meaning in vocabulary;
- incorrect usage of words (paraphasia);
- replacement of words according to their semantic similarity;
- insufficient usage of adjectives and adverbs.

In general, grammatical structure of speech is undeveloped. There is mixing of prepositions or their omission. A great part of CID begin to speak later, and bubbling appears 12-24 months after birth. Phrases appear with delay as well. For example, Wing (1975) describes children who speak and understand language well but have poor non-verbal skills (M. Laney). Likewize and Curtiss (1981) illustrate „dissociation between language and cognition" (Cromer, 1986) - a view we hold as well. However, we have to mention that another term for designation of language disorders in CID is used in Bulgaria, i.e., language delay. This term is very popular but still discussive with regard to its nosological origin, so we shall discuss the data obtained with respect to registered symptoms without claims to specify diagnosis. Theoretical argumentation of general language delay is given by T. B. Filicheva and G. V. Chirkina. They define it as impaired development of all components of a language system regarding phonetic and lexical aspects accompanied by normal hearing and intellect. We found identical complexity of language delay in more than 50% of CID. Finally, „ it is clear that the syndrome of mental retardation does not define a language pathology that is particular to or unique with, children who are considered to mentally retarded" (M. Laney, 1988).

4. About reading, writing and arithmetic problems

The high prevalence of reading (31.4%), writing (28.09%) and arithmetic (23.9%) disorders testifies to delayed development of these processes

characterised by specific features. Averino- Jaquee give evidence that 70% of CID have dyslexia. The Russian author R. Lalaeva (1983) shows dissemination in 62% of children in the first grade and 25% of children in the second grade. Our investigation found out greatest prevalence of reading disorders, since there are specific disturbances in discrimination and difficulties in differentiation between identical phonemes during the primary school years.

Learning letters and combinations of sounds in syllables is a very complicated process for CID. We suppose that a leading role here is devoted to „guess by sense". Letter-by-letter reading, the altered phonetical and syllabic structure of a word, and troubles in comprehensive a text are the most common difficulties in CID. Most frequently, in the Bulgarian language, they change **d -> l (д - л), h -> k (х - к), j -> z (ж - з), g -> t (г - т).** A part of these changes might be explained with writing identity or sometimes with phonetical or articulation similarity.

CID in primary school understand the text very bad.

Troubles in writing have a similar character-- there is a wide range of writing mistakes. Naturally, the application of many writing rules requires a high level of mastery the language rules. The high percentage of dissemination of writing problems is due to cognitive deficit, disturbed oral speech and troubles in writing operations. Pupils make the following mistakes: missed suffixes, prepositions, words, slur words, etc. Dyagram 1 shows that lexical errors, writing problems and poor handwriting were seen in CID. The handwriting was often difficult to interpret; they omitted letters, failed to finish some words, and transposed letters and syllables. Whereas one might regard the handwriting problems as due to disturbed vocabulary and syntax, we suggest that it is due to compromised motor co-ordination.

5. About voice disorders

It is well known from the theoretical sources that voice disorders can be met frequently in CID (V. R. Fisicheli, A. Haber, J. Davis, S. Karelitz, 1966; B. L. Bergendal, 1976; J. C. Montague, 1976; D. Wilson, 1990). Most often, they are manifested by a hoarse voice, hyper- and hyponasality, pitch alterations, and monotony. We found voice disorders in 26.4% of the cases. We utilized procedures for determining the natural pitch level. Vocal instability manifested by tremor during phonation is inherent to CID. The pitch, loudness and quality are disturbed. Harsh voice is typical for 2 of the children with Down syndrome while for the last one hypernasality is a factor. The result is generally a strained, tense quality of the voice and inadequate vocal intensity. In our cases, this improper pitching of the voice has been determined to be related to poor pitch discrimination, anxiety, emotional tension, and organic disturbances.

CONCLUSION

The evidence obtained in our research certifies the common belief for a high dissemination of SLD in CID. Our diagnoses are symptomatic, since there have been no additional investigations on the ethiopathogenesis of SLD. To what degree and how far the SLD registered are primary or secondary is a multi-faceted issue, requiring a complex approach in interpretation of each individual case.

It incorrect that every disorder to be treated as consequence of ID. In certain cases, might accompany ID but not as a result of the latter. This fact requires a differential approach towards the creation of treatment ant management strategies. The main goal in corrective work has to be to improve speech development and transition to the normal level of language ability.

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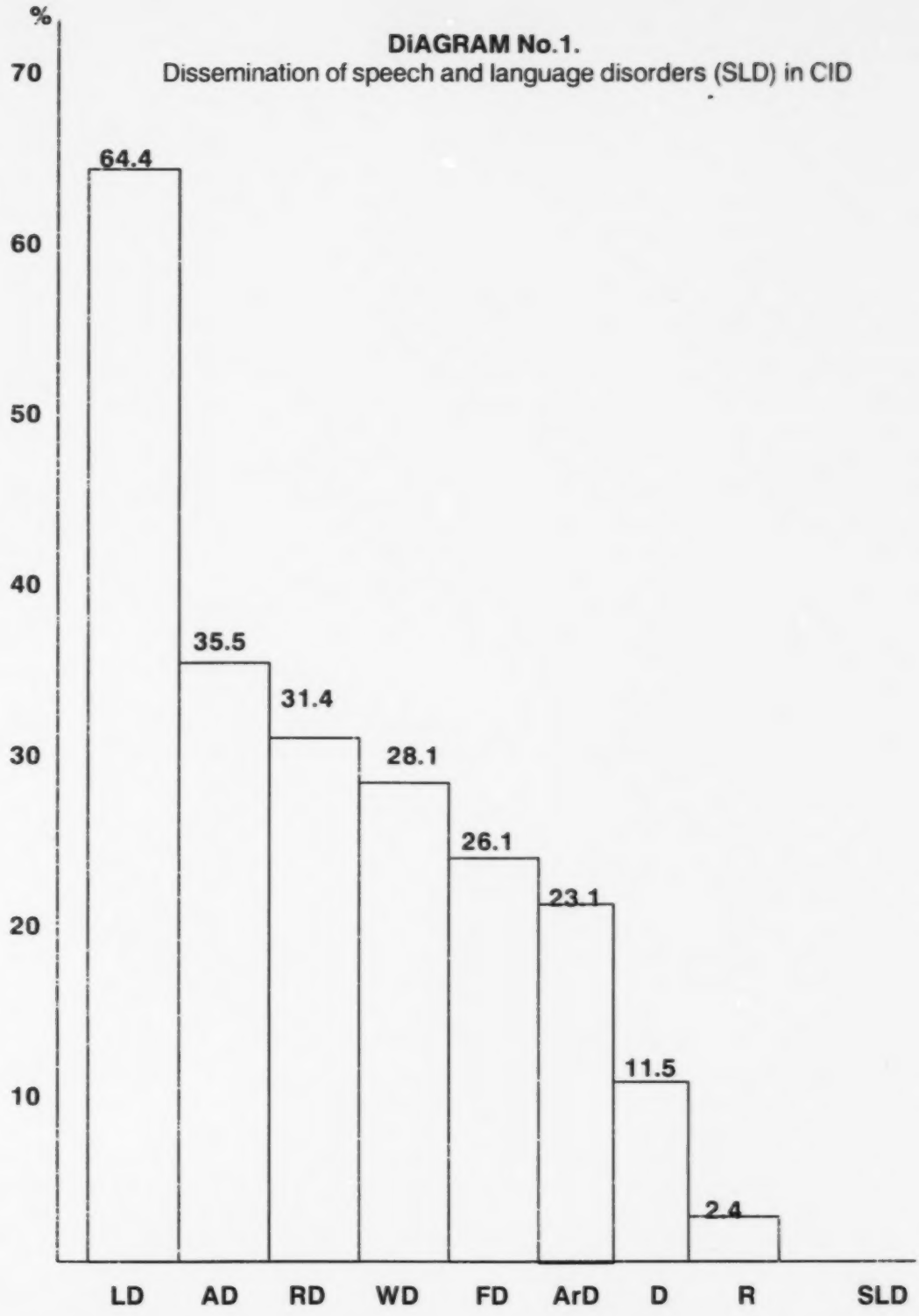
DiAGRAM No.1.

Dissemination of speech and language disorders (SLD) in CID



LD- Language disorders; **AD**- Articulation disorders; **RD**- Reading disorders; **WD**- Writing disorders; **ArD**- Arithmetic disorders; **FD**- Fluency disorders; **D**- Dysartria; **R**- Rynolalia